

## IN THE CLAIMS

### Claims: We Claim:

1. (Currently Amended) A ~~diffraction~~Diffraction grating element (~~SG~~) arranged on or embedded within a light-transmissive, ~~preferably planar~~ waveguiding substrate (~~S~~) and arranged to interact with an incident light wave (~~W~~) in order to couple the energy from said incident light wave (~~W~~) into said substrate (~~S~~) to form at least one diffracted light wave (~~R<sub>-1</sub>, R<sub>+1</sub>~~) propagating within said substrate (~~S~~) and corresponding to at least one selected diffraction order, ~~characterized in that~~wherein the grating element (~~SG~~) is divided into at least two different grating regions (~~BG<sub>left</sub>, BG<sub>right</sub>, MBG<sub>left</sub>, MBG<sub>right</sub>~~) each having different diffractive properties and arranged on opposite sides respect to a transition point (~~TP~~) to form a splitted grating element, where the diffractions generated by said at least two different grating regions (~~BG<sub>left</sub>, BG<sub>right</sub>, MBG<sub>left</sub>, MBG<sub>right</sub>~~) are arranged to mutually compensate for thea variation in the input angle ( $\theta$ ) of the incident light wave (~~W~~) to thea total diffraction efficiency of the at least one diffracted light wave (~~R<sub>-1</sub>, R<sub>+1</sub>~~) propagating within said substrate (~~S~~).

2. (Currently Amended) The diffractive grating element (~~SG~~) according to the claim 1, ~~characterized in that~~wherein in said splitted grating element (~~SG~~) thea grating profile of at least one of the grating regions (~~BG<sub>left</sub>, BG<sub>right</sub>, MBG<sub>left</sub>, MBG<sub>right</sub>~~) has an asymmetric period profile, preferably a blazed period profile.

3. (Currently Amended) The diffractive grating element (~~SG~~) according to the claim 1, ~~characterized in that~~wherein said splitted grating element (~~SG~~) is arranged to be symmetrically splitted, ~~i.e. that is,~~ the element comprises two grating regions (~~BG<sub>left</sub>, BG<sub>right</sub>~~) ~~whose~~having grating period profiles ~~are arranged as to be~~ substantially mirror images of each other with respect to a transition point (~~TP~~).

4. (Currently Amended) The diffractive grating element (~~SG~~) according to the claim 1, ~~characterized in that~~wherein~~in~~wherein said splitted grating element (~~SG~~) comprises at least two grating regions (~~BG<sub>left</sub>, BG<sub>right</sub>~~) ~~whose~~having grating period profiles ~~are arranged to have~~with substantially different depths.

5. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that~~wherein in said splitted grating element-(SG) the \_diffraction efficiency of at least one of the grating regions ~~(BG<sub>left</sub>, BG<sub>right</sub>, MBG<sub>left</sub>, MBG<sub>right</sub>)~~ is arranged to vary at different local distances measured from the transition point-(TP).
6. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that~~wherein the transition point-(TP) is ~~arranged to be~~ located within ~~the~~an area where the incident light wave-(W) first interacts with the splitted grating element-(SG).
7. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that~~wherein ~~the~~a first interaction of the incident light wave-(W) with the splitted grating element-(SG) is arranged to take place substantially within a single grating region-(MBG<sub>right</sub>).
8. (Currently Amended) The diffractive grating element-(SG) according to the claim 7, ~~characterized in that~~wherein at least one of the grating regions ~~(MBG<sub>left</sub>)~~ is arranged to redirect or recirculate the light wave waveguided within the substrate-(S) back towards a reverse direction inside the substrate-(S).
9. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that~~wherein~~wherein~~ the splitted grating element-(SG) is arranged to enlarge ~~the~~an exit pupil of an optical system.
10. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that~~wherein the splitted grating element-(SG) is arranged to enlarge ~~the~~an exit pupil of a biocular or monocular optical system.
11. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that~~wherein the splitted grating element-(SG) is arranged to enlarge ~~the~~an exit pupil of a virtual display.